Abstract

[53] In one embodiment a pneumatic motor is provided that includes an intake chamber in fluid communication with at least one intake channel. Each intake channel is further in fluid communication with a corresponding cylinder, which receives a piston that cycles upwardly and downwardly to rotate a motor axle. A member is placed in each intake channel to seal the corresponding cylinder from each intake channel when compressed fluid in the intake channel has a higher pressure then pressure in the corresponding cylinder. Each piston includes an actuator extending downwardly from the piston and having a profile that, during a portion of the upward cycle of the piston, causes the actuator to push the member back into each intake channel to allow compressed fluid into each of the corresponding cylinders. Each piston includes an intermediate section that has an annular groove, a seal positioned in the groove that creates a fluid tight seal against the corresponding cylinder during the upward cycle of the piston. Compressed fluid that enters the corresponding cylinder during the upward cycle will push the piston upwardly. Each section further includes exhaust grooves defined thereon such during the downward cycle of the piston the seal is broken allowing compressed fluid in the cylinder to bypass the piston and escape through a vent above each cylinder. This causes the compressed fluid in the intake channel to push the member to re-seal the cylinder. The upward movement of the piston further generates inertia that moves the piston downward to continue the cycle.